Long period waves in the polar plumes as observed by CDS

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We examine spectral time series of coronal line Mg IX 368 Å and transition region line O V 629 Å, observed with the Coronal Diagnostic Spectrometer (CDS) onboard the SOHO spacecraft. Primarily we were looking for intensity and velocity oscillations in polar plumes, however by chance we detected a giant macro-spicule at the limb and were able to follow its dynamical structure. Blue and red-shifted emission in the O V line indicates that it is probably a rotating twisted magnetic jet. Emission is also detected in the Mg IX 368 Å line, at a temperature of 1 million K. Both Fourier and wavelet transforms have been applied independently to the analysis of the oscillations in order to find the most reliable periods. We report here on the existence of long period oscillations in the polar plumes as observed in the O V 629 Å line. Our observations indicate the presence of compressional waves with periods of 20-25 minutes.